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REVIEWS

The Mississippian Brachiopoda of the Mississippi Valley Basin. By STUART WELLER. Monograph I, State Geological Survey of Illinois, June 10, 1914. Pp. 508, pls. 83, figs. 36.

In the introduction a brief description and classification of the Mississippian formations as shown along the Mississippi River and in adjacent regions is given. The formations recognized and described are as follows:

- V. Chester group.
 - Clore formation.
 - Palestine formation.
 - Menard formation.
 - Okaw formation.
 - Ruma formation.
 - Paint Creek formation.
 - Yankeetown formation.
 - Renault formation.
 - Brewersville formation.
- IV. Ste. Genevieve limestone.
- III. Merrimac group.
 - St. Louis limestone.
 - Salem limestone.
- II. Osage group.
 - Warsaw formation.
 - Keokuk limestone.
 - Burlington limestone.
- I. Kinderhook group.
 - Containing many formations more or less local in their geographical distribution.

Weller has submitted these Mississippian brachiopods to a rigorous, critical study and revision. The method of study by working out the internal anatomy had already been outlined in his paper on the "Internal Characters of some Mississippian Rhynchonelliform Shells."¹

Since the literature on these fossils has long been in an unsatisfactory and incomplete condition, the revision and redescription of the known forms with the added new species and genera will be welcomed by all students of the fossils of the Mississippian rocks.

¹ *Bull. Geol. Soc. Amer.*, XXI (1910), 497-516.

"The present work is a start toward the publication of a series of monographs which it is hoped may eventually cover all the groups of organisms whose fossil remains are preserved in these formations." The scope of the present work is practically that of the Mississippian rocks of Illinois, Missouri, and Iowa, the typical Mississippian section.

All the genera and all the species are described and abundantly illustrated. More than that, all the old descriptions of species have been rewritten, "so that the usage of terms is uniform throughout."

There are 62 genera and 297 species described. Of this number 4 genera and 80 species are new to science. The limits of the genera and species are closely drawn throughout. However, they are no more closely drawn than is necessary to give a clear understanding of the anatomical relationships and to give proper stratigraphic value to a species. This does not necessarily imply that all the genera are limited to a few species, since there are 44 species of the genus *Spirifer* recognized as valid and described from the Mississippian rocks of the Mississippi Valley basin. The list of species described as new is given herewith, together with the critical characters of the new genera: *Lingula louisianensis*, *Leptaena convexa*, *Schuchertella fernglenensis*, *Schellwienella crenulocostata*, *S. chouteauensis*, *S. planumbonum*, *S. alternata*, *S. burlingtonensis*, *Streptorhynchus tenuicostatum*, *Chonetes missouriensis*, *C. chesterensis*, *Productella sublaevis*, *Productus mesicostalis*, *P. crawfordsvillensis*.

The genus *Echinoconchus* was erected for those species of *Productus* with "more or less sharply differentiated concentric bands which commonly grow broader in passing from the beak to the outer margins, each band bearing numerous, crowded, fine, appressed imbricating spines, either subequal or unequal in size, which are produced from elongate, node-like bases." *Productus punctatus* is the genotype. It so happened that a work entitled *The British Carboniferous Producti*, the first part, by Ivor Thomas, was issued on June 6, four days prior to the issue of Weller's monograph. In this memoir,¹ treating of the first part of the genus, apparently the same group of shells are gathered under the genus *Pustula*. If they are the same, this term, having priority, will be used instead of Weller's term given above. The genus corresponds with Waagen's section IV, *Fimbriati*, in a general way, as published in the *Salt Range Fossils, Brachiopoda*, p. 671. The species referred by Weller to the genus are: *P. alternatus*, *P. genevieveensis* n.sp., *P. biserialus*, *P. morbilianus*.

¹ *Memoirs Geological Survey, London, I, Parts 2, 4, June 6, 1914.*

Continuing with the new species: *Rhipidomella jerseyensis*, *R. tenuicostata*, *Schizophoria chouteauensis*, *S. Sedaliensis*, *S. poststriatula*, *Camerotoechia subglobosa*, *Allorhynchus acutiplicatum*, *Rhynchotrema elongatum*, *R. missouriensis*, *Tetracamera missouriensis*, *Rhynchophora? rowleyi*, *R.? perryensis*, *Centronella louisianensis*.

Under the Terebratulidae a new genus, *Centronelloidea*, is erected. "In its external form this genus is like *Centronella*, but its brachidium is essentially like *Dielasma*, although the development of the crural lamellae in the rostral portion of the brachial valve is entirely different from that genus." *T. rowleyi* is the only known species.

Cranaena globosum, *C. sulcata*, *Dielasma chouteauensis*, *D. osceolensis*, *D. sinuata*, *D. inflata*, *D. illinoisensis*, *D. arkansanum*, *D. subspatulatum*, *Girtyella cedarensis*, *G. intermedia*, *Dielasmella calhounensis*, *Atrypa infrequens*, *Spiriferina salemensis*, *Delthyris similis*, *Spirifer shepardi*, *S. platynotus*, *S. biplicoides*, *S. legrandensis*, *S. crawfordsvillensis*, *S. washingtonensis*, *S. pellaensis*, *S. breckenridgensis*, *S. marshallensis*, *S. floydensis*, *S. indianensis*, *S. maplensis*, *S. subrotundatus n. nom.*, *S. gregeri*, *S. rowleyi*, *S. montgomeryensis*, *S. calvini*, *Brachythyris burlingtonensis*, *B. gurleyi*, *B. altonensis*, *Cyrtina inexpectans*, *Syringothyris bushbergerensis*, *S. newarkensis*, *S. platypleurus*, *S. solodirostris*.

The genus *Pseudosyrinx* is erected "to include a group of spiriferoid shells with high cardinal area, punctate shell structure, and distinct delthyrial plate which differs from that in *Syringothyris* in the entire absence of a syrx upon its inner surface." Genotype, *P. missouriensis*. Other species are: *P. keokuk* and *P. gigas*, *Spiriferina latior*.

The genus *Acanthospira* differs from *Spiriferina* in the possession of a non-punctate shell and the absence of a median septum in the pedicle valve. It differs from *Spirifer* in the possession of fine spines. The genotype and only species known is *A. rowleyi*. The remaining new species described are: *Martinia sulcata*, *Ambocoelia unionensis*, *Reticularia salemensis*, *Eumetria acutirostrata*, *Nucleospira rowleyi*, *Cleiothyridina glenparkensis*, *C. lenticularis*, *C. scitula*, *C. laevis*, *C. pentagona*, and *C. globosa*.

There is no table showing the range of these species through the rocks of the Mississippian formations. This table would be of great assistance to stratigraphic geologists and paleontologists as well. Indeed the reviewer was tempted to prepare one and insert it in the review, since many of the species have a very limited range. However, it will probably accompany a study of the Mississippian formations at a later date when it will be more appropriate.

J. W. B.